

## Intel® Solution Services

## Application Optimization Service

Help ensure your software remains competitive

New software solutions are introduced at a rapid rate. The competition is intense. In this fast-paced, competitive environment, your software solution needs to implement the latest architecture developments to stay ahead of the pack.

With the Application Optimization Service from Intel® Solution Services, you can gain a competitive edge by working with highly skilled and experienced software performance engineers to take advantage of the latest Intel® Architecture features at Intel® Solution Centers. These high-tech centers are equipped with some of the latest Intel Architecture-based hardware and advanced software performance tools, all designed to help ensure your software is up to the task of competing in today's fast-paced environment.

## What Our Service Can Do For You

## Remove barriers and enhance performance

The Application Optimization Service can help you:

- Tune and optimize your software on Linux\* and/or Microsoft Windows\*.
- Master a well-defined performance optimization methodology developed and improved through hundreds of software optimization engagements.
- Tune and optimize for multiprocessing scalability and clustered environments.
- Tune and optimize your code for time characteristics of remote resources over a network.
- Learn how to use the latest performance analysis tools, including Intel's VTune™ Performance Enhancement Environment, Perfmon\*, and other third-party tools.
- Enhance your software solutions by using the latest Intel Architecture features (e.g., Streaming SIMD Extensions, Extended Server Memory Architecture, etc.).

## Some of the barriers we help software developers overcome:

- |                        |                       |   |
|------------------------|-----------------------|---|
| ■ Branch misprediction | ■ Wrong APIs          | ■ I/O completion ports                  |
| ■ Cache misses         | ■ DB connectivity     | ■ Memory leak                           |
| ■ Heap contention      | ■ Incorrect threading | ■ Network/storage system inefficiencies |
| ■ CPU utilization      |                       |   |

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## How Our Service Works

We take a top-down approach of looking at your software performance. This approach enables us to examine and optimize performance through three levels:

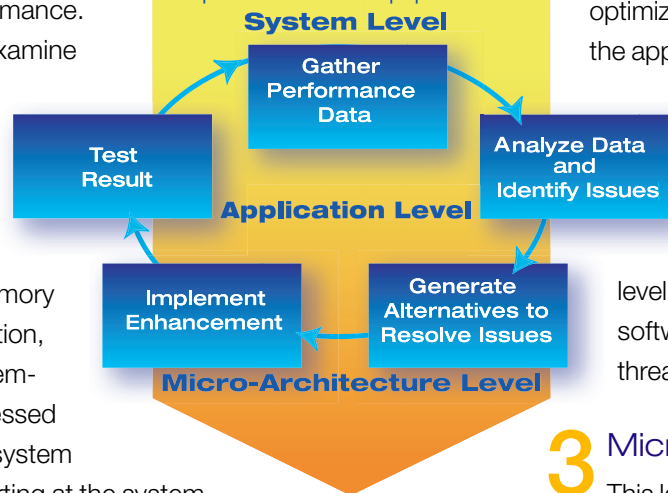
### 1 System

The focus is on components such as processors, memory subsystem, network configuration, and disk subsystem. The system-level optimization can be addressed by modifying the hardware or system software configuration. By starting at the system level, any bottlenecks and inefficiencies that are masking underlying problems at the lower levels are removed.

### 2 Application

This level typically involves looking at issues such as locks, heap contention, threading, and the use of bad/

#### Top-Down Approach



good API calls. Often, these optimizations involve modifications to the application semantics and sometimes even redesigning or re-implementing various parts of the software. For example, one application-level optimization is to redesign your software to take advantage of multi-threading.

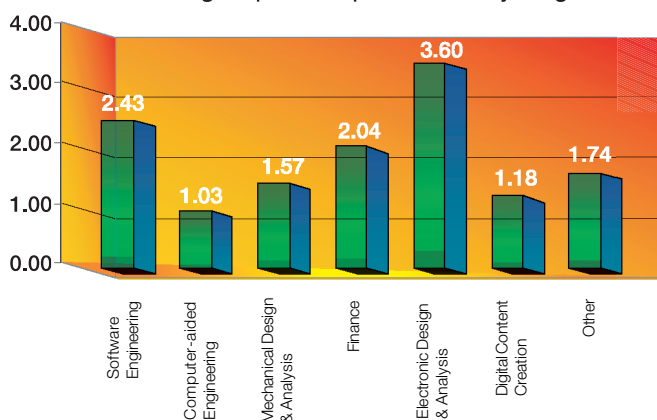
### 3 Micro-Architecture

This level of optimization often involves making modification to the source code to take advantage of the microprocessor's architectural features. For example, modifications could be made that minimize branch mispredictions or change loop constructs to take advantage of the multiple execution units and pipelining available in the processor.

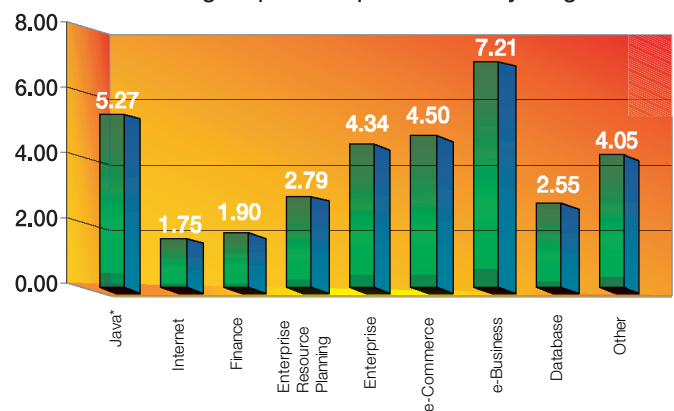
## Proven Track Record

Over 90% of our customers rated our service as *good* or *superior* in customer surveys conducted after engagements. The charts, located to the right and below, illustrate the performance improvement we achieved in 1999 for server and workstation software - we averaged a 3.98 times improvement<sup>†</sup>. These figures are based on workloads defined by customers for their software solutions.

Workstation Visits  
Average Speed Improvement by Segment



Server Visits  
Average Speed Improvement by Segment



Performance improvement is determined by comparing the results of performance tests conducted before and after optimization. The tests measure performance on specific combinations of software, hardware, and other components. The past results, found above and to the left, do not guarantee any specific performance increase for future optimizations. The actual performance change for a specific application is dependent upon the level and amount of optimization possible for these system combinations.

<sup>†</sup> This number is based on the actual performance improvement number for workstation and server visits. It is an average of all actual totals.

For more information visit [www.intel.com/internetservices/intelsolutionservices](http://www.intel.com/internetservices/intelsolutionservices)

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